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first structure simplified. Later the lens and especially the vitreous body degenerated more rapidly than the retina. The muscles in Typhlichthys have disappeared. The scleral cartilages have not failed to the same extent as the active structures of the eye. The degeneration is in no case due to arrested development. D. S. J.

Abbott on the Marine Fishes of Peru. — An excellent piece of faunal work is "The Marine Fishes of Peru," by James Francis Abbott, published in the *Proceedings of the Academy of Natural Sciences of Philadelphia* for June, 1899.

The paper is based on the collections made by Rear-Admiral L. A. Beardslee, U. S. N., at Callao, while in command of the *Philadelphia*. This accomplished officer has long taken a deep interest in natural history matters, and this collection presented by him to Stanford University is a proof of such interest.

Mr. Abbott notes 102 species as recorded thus far from Peru, and thirty of them are included in the Beardslee collection. Mr. Abbott describes as new the following species from Callao: *Basilichthys octavius*, *Basilichthys regillus*, *Basilichthys jordani*, *Pisciregia beardsleei*, and *Sciæna gilberti*. The new genus Pisciregia is allied to the California genus Atherinopsis, having a similar non-protractile premaxillary, but the vomer is armed with recurved teeth; the outer teeth in the jaws are enlarged, and the first dorsal is very small. The abundance of species of large-sized Atherinidæ (Pez del Rey), constituting the genera Chirostoma, Atherinopsis, Atherinops, Basilichthys, and Pisciregia, excellent food fishes all, is one of the notable features of the fish fauna of the eastern Pacific. D. S. J.

Fishes of French Guiana. — Dr. Léon Vaillant has published in the *Bulletin* of the Museum at Paris a paper on fishes collected in French Guiana, mostly from fresh waters.

Two new species are described: *Arius physacanthus*, from Rio Mahury; and *Rivulus geayi*, from Rio Cachipour. The Arius is allied to *emphysetus* and should be placed with it in Sciadeichthys if the modern genera of Bleeker are adopted. D. S. J.

Australian Tunicata. — Students of the Tunicata have known for some years that Professor W. A. Herdman has been occupied with the investigation of the collections of this group belonging to the Australian Museum at Sydney, New South Wales, and his report has been looked forward to with interest. After a considerable delay, due to the late financial depression in Australia, the work has now been published as *Catalogue No. XVII* of the Museum. That it is of the highest order of scientific excellence hardly needs to be said, particularly for those who are familiar with Professor Herdman's distinguished work in the past on this group of animals.

The author has entitled his report a "Descriptive Catalogue of the Tunicata in the Australian Museum, Sydney, New South Wales," and he says that it is not to be regarded as a monograph on Australian Tunicata. He tells us that he was expressly enjoined by the trustees of the Museum "not to enter into anatomical and histological details beyond what he considered necessary for the elucidation of the systematic position and the sufficient description of the various species." The fact, consequently, that he has devoted nearly one hundred large octavo pages and forty-two plates to the description of the sixty-two new species serves as an index to what this veteran ascidiologist believes to be the briefest treatment consistent with exactness in this group.

In his introduction he gives a brief discussion of classification and concludes that, despite the various quite radically different systems that have since been proposed, he sees no sufficient reason for departing widely from the one adopted by him in his *Challenger* report of 1882. And he justly remarks that he feels himself strengthened in his position by the fact that this system has been quite generally adopted by recent writers, notably by Seeliger in his "Tunicata" for Bronn's *Klassen und Ordnungen des Thierreichs.*

He does, however, introduce one modification of considerable importance. He divides the Ascidiæ compositæ into two sections, one of which contains the "compact-bodied families," Botryllidæ and Polystyelidæ, and the other the "remaining families with extended or divided bodies." For these he proposes to adopt the names "Holosomata" and "Merosomata," respectively, if Sluiter, who first used them, but in a somewhat different sense from that in which Herdman proposes to use them, will agree to Herdman's modification. Or if Sluiter refuses to accept this modification, then Herdman will adopt the terms "Pectosomata" and "Chalarosomata" for the respective groups.

There can be no doubt, particularly since the Polystyelidæ and Botryllidæ have been shown to agree so closely in their method of budding, that they should be associated more closely in classification than either family can be with the other families of compound ascidians. I believe, however, that the point of similarity emphasized by Professor Herdman's proposal, *viz.*, the compactness of the body, is considerably less fundamental than some other characters that might be selected, particularly that of the method of budding. Furthermore, the term "Holosomata" does not apply to these two families any more than it does to Perophora, which genus the author does not, of course, associate with the Botryllidæ and Polystyelidæ.

I would not go so far as Garstang has in relying upon the character of the budding as a basis for classifying the compound ascidians, but I believe that in the present state of our knowledge the most natural grouping of them that can be made is into two sections. One of these would include those in which the buds arise directly from the body of the parent, and the other those in which the budding is from a stolon. The first section might well be called the "Somatoblastica" and the second the "Rhizoblastica." These sections would correspond to Herdman's, with the exception that it would remain for the present an open question as to which one should contain the Didemnidæ, the probabilities being, however, that this family would ultimately find its place among the Somatoblastica.

Those who object to mongrel words will be likely to find fault with "Pectosomata" on etymological grounds.

At the close of the report the author has given a list of all the species of Tunicata thus far known from Australian waters. This list includes 187 species, distributed as follows among the three divisions of the group:

Larvacea	1 species
Thaliacea	7 species
Ascidiacea	179 species

The work is a very important contribution to the general zoölogical knowledge of this group. Less can be said in favor of the volume from the bookmaker's than from the naturalist's point of view, but it will serve its purpose well, and that is the essential thing.

WM. E. RITTER.

The Coccidæ of Mauritius. — M. d'Emmerez de Charmoy has recently published a very interesting account of the Coccidæ of Mauritius, in a pamphlet issued by the Société Amicale Scientifique of that island. As it is probable that this work will not fall into many hands, it may be worth while to give a list of the species,